

An Essay

on the

Physiology of Impregnation

Respectfully submitted

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by

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Physiology of Impregnation

There is one stupendous law running thro' the domain of Nature, both mental & material; - All Her operations are performed in the progression of End, Cause, & Effect; - in which the extremes meet, & thus form a kind of circle. - The circle of the seasons, the circle of - ocean, vapor, rain, & running water are familiar instances in outward nature - But whenever we act voluntarily, the law still obtains. The End is the gratification of some desire; - the Cause is the means used to attain it; - And the Effect is the possession of the object which gives the gratification; which Effect, it is plain, makes one with the End, - or completes the circle. To illustrate. A man is about to build a house; - The End which

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prompts the act is a habitation, - a desire for protection against the elements; - the Cause is all the means used to construct the house, - And the Effect is the house itself, - which cannot be disconnected from the habitation - the End.

Even in writing a book the author cannot escape the law; for after he has written the last chapter he must turn back to the beginning, & write the preface. -

But that which Nature does in the world at large she does preëminently in Man, the Microcosm, - the little world. In his creation the first & last terms meet. The first principle in his existence is, of course, the seed. From this beginning. Manhood is the End which she proposes to herself, - means of growth, the cause, - & manhood embodied, the Effect. The full

expression of this Manhood is virile power, whose ultimate is again the seed, the last principle, which completes the circle. — The first principle or boundary in the animal body is the Brain. Its last boundary is where it casts off or rejects as incongruous, things ^{once} closely connected with itself: — thus the rectum & urethra. Hard by this last boundary, this last term of the mighty circle in the animal economy, are located the organs devoted to the beginning, the first term of a new animal. — And these genitals are more closely connected with the above mentioned organs than at first appears. The testicles are connected by their membranes & septa to the rectum & urethra, and to the anus by the raphe

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of the scrotum. The vesiculae seminales
are in close contact with the bladder
as the prostate is with the rectum; not
to mention the urethra as being the com-
mon channel for the passage of both the
urine & the seminal fluid.

Hence the stupendous reason for the
location of the organs, elevated to the dig-
nified trust of continuing our race.

In order to understand the sub-
ject before us, let us place ourselves
by Nature's side & accompany her in
her several acts. — However inappro-
priate & inadequate are the expressions &
terms made use of in common language,
when treating of the Soul, the wisest, the
Supreme Ruler of the body, — we are obliged

to use them, or say nothing. And it is lawful to do so, provided we understand & acknowledge that the various forms, modes & accidents of matter cannot be predicated of the soul. But if the soul exists in the body, & the body lives by virtue of the soul, there must be some point of contact between them. There must ^{be} some common ground within the body where they can meet; where matter is most nearly immaterial, & where spirit most nearly approaches matter. The nerve fibre is undoubtedly the first or highest plane of the soul's exhibition to our apprehension. And the contents of the nerve fibres, ~~or the~~ the animal spirits, are the first swathings which the soul puts on in its going out to the external world;

or more properly, in going forth to the ultimates of its own domain, the externals of the body. But the nerve fibre is compounded of myriads of fibrils, or far excellence, simple fibres - in which the soul exists free & naked. The nerve fibre, itself becoming compounded, makes the finest vessels, thro' which the soul inaugurates the blood; thus making it the soul's viceregent in the body. Hence the works of God sound a stupendous harmony with His Word: -
 "For the life of the flesh is in the blood".

Lev. XVII, 11.

On the procreation of offspring, the soul must give of itself; to become the essence, the internal activity of the future being. For this purpose its determinations must

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^{be} towards the organs devoted to generation.

First in the series are the testicles;— and in the testicle the veriest tubules, which in a sense are continuous with the simple fibres, — the components of the nerve fibre.

“But those tubules of the testicle are abundantly supplied with nerve fibres, which offer the first swathing to this self-gift, which now becomes the veriest seed, — consisting of globules or most pure spherules; in the inside of which are contained the first, simplest, inmost, highest substances of the animal body; while the animal spirit constitutes the surface which extends around like a crust & completes the globule. — (We must use these inadequate expressions, but we may think more purely.) — At this first threshold,

the starting point of this new being on
 its journey of life, let us linger & note
 the wonderful & lavish preparation &
 outfit of the traveller. — The choicest,
~~refined~~ ~~living~~ purest, daintiest, most
 living treasures from the whole body
 must be given to it here. For this pur-
 pose the spermatic arteries are wonder-
 fully adapted. — It is a law of
 the animal economy that every organ
 draws from the common treasury just
 that quality, as well as quantity, of
 blood which the due performance of
 its function requires. Accordingly,
 as the brain must have the purest part
 for its own & the body's sake, it selects
 from the fountain head of the aortic
 torrent through the first arteries, the

carotids. Hence the sensoria as well as the brain are fed with the purest of the blood. Next come the subclavian arteries which carry the next purest blood to the muscular fibres of the chest and upper extremities. - But the blood as it leaves the heart contains an infinite variety of qualities, from the most living to the most worthless & worn out globules. After the carotids & subclavians have drawn off their quota of pure blood, the torrent contains a larger proportion of impure blood. Organs high in office could not now get an adequate supply. Hence here come off the emulgent arteries which draw off a quantity of impure blood proportionate to that of the pure blood demanded of the carotids

and subclavians. The liver, spleen & pancreas, all working for a common end, — the separation of debris from the pure globules, — are hence in intimate association. The kidneys perform a similar but yet a distinct office. Where else then, than immediately below these emulgent, should we look for the spermatic arteries! But this first draught from the purified stream will contain crudités which cannot be permitted to administer to our ethereal traveller. That these may find a chance of exit, a long way is given the ^{blood} thro' which to pass, and by-ways are provided thro' which all the crudités may effect their escape. Hence the spermatic arteries transmit branches to the kidneys & suprarenal

capsules, - to the adipose membrane of both kidneys & skin, & also to the peritoneum: - in order that ^{none of} the urinous, aqueous & oily matters may ~~not~~ intrude themselves into such ^{an} august presence. But the supply of blood needs to be only small in quantity, so that the quality suffices. Hence the small calibre of the spermatic, still the provision to insure that small supply is wonderful, but cannot be detailed here. - The quantity of animal spirits, however, must be more generous; because nothing lower than these can minister to any extent, to the spirituous traveller. Hence the testicle is supplied with nerve fibres from the mesenteric plexus, consequently from the par vagum & great intercostal nerves which accompany

the spermatic vessels; from the lumbar nerve; from the great ischiatic & crural nerves;— Also a large branch is supplied to it from the fourth pair of sacral nerves. Here then is the outfit, or clothing of this inmost spherule, — an effect from the soul itself. — The purity of the clothing, this its inmost swathing is inferior only to the veriest seed, or spherule itself. A thing so pure, so living, so ethereal, would fly off & be dissipated instantly without a swathing grosser than itself. But in order that it may be preserved while it is thus fixed, as by a crust, the first, inmost envelope must be, & as we have seen, it is, the purest product from Nature's laboratory. Thus much for the tubuli seminiferi & their office.

— The seed now moves on; first to the epididymis where it receives a second covering, less pure than the first;— then thro' the vas deferens to the vesicula seminalis, where it is deposited and again becomes clothed, & perhaps otherwise developed. When it gets ready to depart hence, — during coition, — the prostate throws out a profuse unctuous humor, — a part of which acts as a forerunner to supply a soft lining to the entire walls of the urethra, — for the seed with all its swathings would still be in danger of being stranded by attrition on the asperities of the canal, or of being destroyed by meeting urinary exudates. — And another part mingles with the seminal spherules (for there are many

of them) meeting them at the very mon-
 tum, enveloping them still more to
 insure a safe journey to the organs of
 the female. — The anatomy of the parts
 & other considerations would have to be ap-
 pealed to in proof of these several propo-
 sitions: — But time forbids. — Thus Na-
 ture takes similar steps with the animal
 as with the vegetable seed, which is suc-
 cessively enveloped in tunics, pulp, mem-
 branes or shell, to insure its safe lodgement
 in the earth, — the womb of all the plants,
 other than the vagaries of the life
 where the male organs cease to act. Their
 charge is delivered up. And there must
 be, to perfect the work thus begun, a
 perfect correspondence between the gen-
 erative organs of the male & those of the female.

First the vagina corresponds (as passive corresponds to active force,) exactly to the penis; - for it completely applies itself to the penis as a coat to a body, - adapting itself by contracting to a small one, & expanding without inconvenience to a large one, & especially, during coition, endeavoring by its close contact & viscid, gleey secretion to make one with the penis. Indeed, if the penis were to have another coat than those it already has, it could be like none other than the vagina. - 2. The lips constituting the os externum, by expanding receive most intimately the glans penis, being adapted to it & corresponding to it in a way very similar to the vagina & penis. - 3. The short canal to the

cervix is then in coaptation with the urethra of the penis, & is as it ^{were} a continuation of it, thro' which the seed is transmitted uninterruptedly. Thus that which is the last boundary with the male, as regards the seed, is the first boundary with the female. Their correspondence is perhaps still plainer.

4. Between the os externum & os internum, lies a cavity, the cervix uteri. This receives the seed in the exact state in which it leaves the vesicula seminalis with its addition from the prostate. And as the vesicula detain'd the seed for the last ensuatching & elaboration, so the cervix which corresponds to it, retains it for corresponding (not similar) elaboration. The seed is

I am convinced that, for want of care in ascertaining this point, and the constant habit of using the sound; It is generally considered that the cavity of the womb can be reached only by the os internum, & that the seed is not introduced into the cavity of the womb until it has reached the os internum.

detained here because it cannot pass into the cavity of the uterus. The anatomical arrangement of the cervix & os internum, viz. vaginal forming true valvulae consentientes, is such as to permit easy egress from the cavity, but no ingress that is not violent.* As the seed in its onward progress from the tubuli seminiferi was receiving successive envelopes, so a reverse process must obtain in the organs of the female. Here, there is poured upon the seed from the numerous glands of the cervix, a somewhat limpid secretion, from which dissolves or macerates the outmost envelopes received from the prostate & vesicula seminalis, causing them to unfold. Here again Nature

* I am convinced that, for want of care in ascertaining this point, such errors are continually made, even when the sound enters the cavity of the uterus, errors are continually made, even when the sound enters the cavity of the uterus, errors are continually made, even when the sound enters the cavity of the uterus. It is generally considered that the sound enters the cavity of the uterus, when in reality, as we have seen, it may have reached only the os internum. I have witnessed this mistake

follows the same law as with seeds of vegetables in the soil: the outer coverings being laid aside by maceration or decay. —

5. The seed thus relieved of the outer envelope, passes freely into a minute canal leading thro the wall of the cervix to the ovarian ligament. No one need be told that this corresponds to the vas deferens in the male; for the seed passes thro' this canal with the one, puriest, envelope with which it travelled thro' the vas deferens to the vesicula seminalis. — Very few anatomists have indeed discover'd this canal, & fewer still perhaps have tho't it of any particular moment. But it has been described & distinctly delineated & figured by several older anatomists. —

The ovarian ligament is made up of a bundle of fine filamentous ducts, which the ancient anatomists denominated the vas deferens of the female. Each of these ducts, perhaps, lead to a single ovum; And thus when one, the most open, leading to the ripest ovum, receives some of the seed the others become closed by pressure which prevents other ova from receiving any. - O. Thus freed from all ~~by~~ adscitious matters save the first, purest swathing, it hastens to the ovum, - & first to the corpus luteum, which receives it very much as as did the epididymis about the testicle, to which therefore the corpus luteum, corresponds most exactly. The corpus luteum ^{is} almost similarly convoluted to the epididymis.

It similarly courses this seed to circulate thro' its doors; as appears not only from the corruption of parts, but also from actual experience in pregnant women. For the corpus luteum, according to Graaf, swells up during the first days of pregnancy, & almost surrounds the enclosed ovum, cherishing & embracing it on every side;—thus supplying & forwarding to every point this spirituous stranger & genital guest. Add to this that the purest blood of the spermatic vessels arrives hither, just as to the epididymis in the male. 7. Then the ovum takes within itself this offset of the father's soul, as it was first presented to the primitive tubules of the testicle. The ovum then is the ultimate receptacle of

the seed. It stands at one extreme, corresponding to the testicle which stands at the other extreme. And thus the two mutually regard each other as ends; or as active & passive forces regard each other; or as efficients, & recipients; or as essences, & forms. —

When the correspondency ceases, & here our subject might seem to cease also. Here seems to be the last term of the mother's forces in creating the new being. The fallopian tube has its ovarian extremity floating so freely in the cavity of the abdomen as to seem to belong to another system. Does this distinct chasm exist between the ovary & the fallopian tube, because the ovary is the last terminus of the individual, & the point of departure

of the new being? Surely in no part else of the animal body is there so abrupt a termination of a part, within the body.

The uterus & fallopian tubes have no correspondence with organs in the male. They are not only peculiar to the female but to the female of the mammalia. When the ovum is prepared to leave the ovary, it is impregnated; - it is not only the germ of the new being, but is the new being. - And contains, in potency, everything that it is capable of becoming, both in time & in eternity.

The prevailing theories of impregnation deserve a passing notice. Of the anatomical structure of the cervix uteri is what ^{it} is here asserted to be, that of

itself would be fatal to most of them. —

But granting that the semen finds its way into the cavity of the uterus, there are still great difficulties in the way of establishing the two principal theories of the day. These two may be briefly considered —

1st. — An ovum comes into the cavity of the uterus within two to six ^{days} after the cessation of every menstruation. Semen then being deposited within a determinate number of days, may find the ovum & impregnate it. After the determinate time is past, no impregnation can take place till after another menstruation, because the ovum has escaped through the vagina. — Unfortunately, (for the theory, not for the race) we know that women do become pregnant from coition two days

before menstruation begins. — But we might safely pronounce against the truthfulness of such a theory by looking at any other of Nature's operations. She performs all her works in the most determinate & most exact way, scrupulously guarding against almost an infinity of contingencies which might thwart her purposes. And the higher the purpose, the more guarded & determinate is the way to the end. But the procreation of the species is among the very first, the very highest of Her Ends; — yet no where, not even in the very meanest of her operations, the acts of defecation, does she pursue so indeterminate a course, as running the chances of impregnation in such a wide spread cavity as that of the uterus!

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The fact of extra uterine conceptions need ^{not} even be mentioned against it.

2nd theory. The ~~ovum~~ ^{seed} passes up the fallopian tube, & by some unknown path to the ovum. Query:—how does the semen penetrate the dense membranes covering the ovum before rupture? On what bridge does it cross the hiatus between the fallopian tube & ovary? Is the difficulty any less in the way of impregnation in this case, than in the cavity of the uterus? ~~In what instance~~ What force propels the seed against the ciliary current flowing towards the uterus within the fallopian tube? —

Last query:—does our theory explain why, according to Bennet, chronic inflammation of the neck of the uterus is so frequent a cause of sterility?

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